

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1 1-8. (Canceled)

1 9. (Original) A graphical user interface for rendering first measurement data and
2 second measurement data on a display, the first and second measurement data each comprising
3 measurement data points that each include first and second coordinate values representing a
4 position in a plane, each of the data points of the first measurement data further including a
5 measurement value representing a measurement of a first predefined measurement parameter,
6 each of the data points of the second measurement data further including a measurement value
7 representing a measurement of a second predefined measurement parameter, the graphical user
8 interface comprising:
9 a surface image generator to generate first image data from the first measurement
10 data and second image data from the second measurement data, the first image data representing
11 a 3-D first surface image of a first surface that extends along the plane and is contoured based on
12 the measurement values of the data points of the first measurement data, the second image data
13 representing a 3-D second surface image of a second surface that extends along the plane and is
14 contoured based on the measurement values of the data points of the second measurement data;
15 and
16 an overlay image generator to generate overlay image data by overlaying the first
17 and second image data, the overlay image data representing a 3-D overlay image of one of the
18 first and second surfaces overlaid on the other one of the first and second surfaces, the overlay
19 image being displayed by the display in response to the overlay image data.

1 10-17. (Canceled)

1 18. (Original) A graphical user interface for rendering first measurement data
2 and second measurement data on a display, the first and second measurement data each
3 comprising measurement data points that each include first and second coordinate values
4 representing a position in a plane, each of the data points of the first measurement data further

5 including a measurement value representing a measurement of a first predefined measurement
6 parameter, each of the data points of the second measurement data further including a
7 measurement value representing a measurement of a second predefined measurement parameter,
8 the graphical user interface comprising:

9 a surface image generator to generate base image data from the first measurement
10 data, the base image data representing a 3-D surface image of a surface that extends along the
11 plane and is contoured based on the measurement values of the data points of the first
12 measurement data,

13 an augmentation data generator to generate augmentation data from the second
14 measurement data, the augmentation data providing an augmentation of the surface based on the
15 measurement values of the data points of the second measurement data;

16 an augmented image generator to generate augmented image data by augmenting
17 the base image data with the augmentation data, the augmented image data representing a 3-D
18 augmented image of the surface augmented by the augmentation.

1 19-43. (Canceled)

1 44. (Original) An SPM probe that comprises:

2 an SPM tool that has a cantilever and a tip on the cantilever; and

3 a base that has an upper and lower surface and surrounds the SPM tool;

4 the cantilever of the SPM tool being connected to the base so that the SPM tool is
5 located between the upper and lower surface when the cantilever is not bending, the cantilever of
6 the SPM tool being capable of being selectively bent back and forth by a tip activation apparatus
7 so as to selectively position the tip of the SPM tool below and above the lower surface of the
8 base whereby the tip of the SPM tool may be selectively activated and deactivated for making
9 SPM measurements or SPM modifications to an object and protected from being damaged when
10 deactivated.

1 45. (Original) An SPM probe as recited in claim 44 that further comprises the tip
2 activation apparatus.

1 46. (Original) An SPM probe as recited in claim 45 wherein:
2 the cantilever is conductive;
3 the tip activation apparatus comprises electrodes fixed to the base above and
4 below the cantilever;
5 whereby the cantilever is selectively bent back and forth by applying selected
6 voltages to the electrodes and the cantilever.

1 47. (Original) An SPM probe as recited in claim 44 further comprising:
2 an additional SPM tool having a cantilever and a tip on the cantilever; and
3 the cantilever of the additional SPM tool being connected to the base so that the
4 additional SPM tool is located between the upper and lower surface when the cantilever is not
5 bending, the cantilever of the additional SPM tool being capable of being selectively bent down
6 and up by a tip activation apparatus so as to selectively position the tip of the additional SPM
7 tool below and above the lower surface of the base whereby the tip of the additional SPM tool
8 may be selectively activated and deactivated for making SPM measurements of or SPM
9 modifications to an object and protected from being damaged when deactivated.

1 48-53. (Canceled)

1 54. (Original) A microstructured force balance that comprises:
2 a base;
3 a contact platform;
4 a suspension system connected to the base and the contact platform to
5 displaceably suspend the contact platform over the base, the contact platform being displaced by
6 varying amounts of displacement when varying amounts of force are applied to the contact
7 platform by contacting the contact platform; and
8 a displacement actuator to selectively apply varying amounts of force to the
9 contact platform to selectively cause varying amounts of displacement of the contact platform
10 with respect to the base.

1 55. (Original) A microstructured force balance as recited in claim 53 wherein the
2 suspension system comprises spring arms connected to the contact platform and the base.

1 56. (Original) A microstructured force balance as recited in claim 53 wherein:
2 the suspension system displaceably suspends the contact platform over the base
3 for displacement in multiple dimensions;
4 the contact force has components in the multiple dimensions so that the
5 displacement of the contact platform is in first directions in the multiple dimensions;
6 the microstructured force balance further comprises multiple ones of the
7 displacement actuator to apply the force in second directions opposite to the first directions and
8 along the multiple axis of direction so that the actuator caused displacement and opposite to
9 selectively cause the varying amounts of displacement of the contact platform in the multiple
10 directions.

1 57. (Original) A microstructured force balance as recited in claim 54 wherein:
2 the suspension system displaceably suspends the contact platform over the base in
3 multiple directions;
4 the contact platform being displaced in the multiple directions by the varying
5 amounts of displacement when the varying amounts of force are applied to the contact platform
6 in the multiple directions by contacting the contact platform; and
7 the microstructured force balance further comprises multiple ones of the
8 displacement actuator to selectively apply the varying amounts of force in the multiple directions
9 to selectively cause the varying amounts of displacement of the contact platform in the multiple
10 directions.

1 58. (Original) A microstructured force balance as recited in claim 54 that further
2 comprises one or more displacement sensors to sense the varying amounts of displacement of the
3 contact platform.

1 59. (Original) A microstructured force balance as recited in claim 58 wherein:
2 the suspension system displaceably suspends the contact platform over the base in
3 multiple directions;
4 the contact platform being displaced by the varying amounts of displacement in
5 the multiple directions when the varying amounts of force are applied to the contact platform in

6 the multiple directions by contacting the contact platform;
7 the microstructured force balance further comprises multiple ones of the
8 displacement actuator to selectively apply the varying amounts of force in the multiple directions
9 to selectively cause the varying amounts of displacement of the contact platform in the multiple
10 directions; and
11 the microstructured force balance further comprises multiple ones of the
12 displacement sensor to sense the varying amounts of displacement of the contact platform in the
13 multiple directions.

1 60. (Original) A microstructured force balance as recited in claim 58 that further
2 comprises a control circuit located on the base, the control circuit being coupled to the
3 displacement actuator to control the displacement actuator to selectively apply the varying
4 amounts of force to the contact platform in response to displacement control signals, the control
5 circuit being coupled to the displacement sensor to generate displacement measurement signals
6 that provide a measure of the varying amounts of displacement of the contact platform sensed by
7 the displacement sensor.

1 61. (Original) A microstructured force balance as recited in claim 54 wherein:
2 the contact platform comprises a displaceable electrode that is displaced when the
3 contact platform is displaced; and
4 the displacement actuator comprises the displaceable electrode and a stationary
5 electrode fixedly coupled to the base such that the varying amounts of force selectively applied
6 to the contact platform by the displacement actuator are applied by selectively applying voltages
7 across the stationary and displaceable electrodes.

1 62. (Original) A microstructured force balance as recited in claim 58 wherein:
2 the contact platform comprises a displaceable electrode that is displaced when the
3 contact platform is displaced; and
4 the displacement sensor comprises the displaceable electrode and a stationary
5 electrode fixedly coupled to the base such that the varying amounts of displacement of the
6 contact platform are sensed by sensing voltage changes across the stationary and displaceable
7 electrodes.

1 63. (Original) A microstructured force balance as recited in claim 54 wherein:
2 the contact platform comprises a displaceable comb structure that is displaced
3 when the contact platform is displaced;
4 the displacement actuator comprises the displaceable comb structure and a
5 stationary comb structure fixedly coupled to the base such that the varying amounts of force
6 selectively applied to the contact platform by the displacement actuator are applied by selectively
7 applying voltages across the stationary and displaceable comb structures.

1 64. (Original) A microstructured force balance as recited in claim 58 wherein:
2 the contact platform comprises a displaceable comb structure that is displaced
3 when the contact platform is displaced; and
4 the displacement sensor comprises the displaceable comb structure and a
5 stationary comb structure fixedly coupled to the base such that the varying amounts of
6 displacement of the contact platform are sensed by sensing voltage changes across the stationary
7 and displaceable comb structures.

1 65-88. (Canceled)

1 89. (Original) A probe for delivering a fluid material to an object, the probe
2 comprising:
3 a tip with a capillary;
4 a microstructured pump having an inlet to receive the fluid material and an outlet
5 in fluid communication with the capillary, the pump pumping the fluid material into the capillary
6 so that the fluid material is ejected by the capillary and delivered to the object in response to a
7 control signal received by the pump.

1 90. (Original) A probe as recited in claim 89 further comprising:
2 a base in which the pump is formed; and
3 a support platform connected to the base and on which the tip is located, the
4 support structure having a duct that connects the capillary of the tip and the outlet of the pump.